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ABSTRACT

This work explores whether a "psychological price" is indicated in the affective domain of the weaker student in ability-mixed settings; whether this price differs for various dimensions of this domain; and whether it is related to academic achievement. Existing research in the fields of ability grouping, streaming, curriculum tracking, and ethnic segregation and integration is analyzed and supplemented by an in-depth study of two Israeli samples. A major finding is that the level of classroom intellectual composition is negatively related to evaluations of learning motivation and academic self-image but positively related to sense of control (and sometimes to aspirations), and analogously related to the positive effect of classroom composition on academic achievement. It is suggested that different socio-psychological processes may affect achievement and certain affective variables differently than they do other affective variables. In the cognitive domain, and possibly in the case of control and aspirations, the class is more likely to function as a norm resource. In contrast, comparative reference seems to be more effective in influencing self-image. It is concluded that even if enrichment of intellectual composition involves the psychological price of a lower academic self-image and reduced motivation for the "lows," their academic achievement is not reduced but increased. (Author/RDN)

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HOMOGENEITY AND HETEROGENEITY IN EDUCATION: THE "PSYCHOLOGICAL PRICE" ARGUMENT*

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Abstract

This work explores whether a 'psychological price' is indicated in the affective domain of the weaker student in integrated, ability-mixed settings; is this price differential regarding various dimensions of this domain; and, is it related to academic achievement. Investigation is conducted through an analysis of the existing research in the fields of ability grouping, streaming, curriculum tracking and ethnic segregation and integration. This analysis is supplemented by an in-depth study in two Israeli samples. It was found that the level of classroom composition is negatively related to evaluations of learning motivation and academic self-image but positively related to sense of control (and sometimes to aspirations), analogously to the positive effect of composition on academic achievement. It was also found that incorporating motivation-related variables in analyzing the effect of classroom intellectual composition on achievement hardly alters the pattern of effects discerned without including an affective dimension in the analysis. It is suggested that different socio-psychological processes may affect achievement and certain affective variables differently than they do other affective variables. Normative reference seems to be more effective in the cognitive domain; i.e., here the class is more likely to function as a norm resource. This may also be the case with regard to control and aspirations. In contrast, comparative reference seems to be more effective in influencing self-image. It is concluded that even if enrichment of intellectual composition involves a psychological price of a lower academic self-image and even reduces motivation for the 'lows', their academic achievement is not reduced; in fact it is increased.

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HOMOGENEITY AND HETEROGENEITY IN EDUCATION: THE 'PSYCHOLOGICAL PRICE' ARGUMENT

Introduction

While attempting to answer the demand of education for all, first on the elementary level, then the post-elementary stage, and eventually for higher education, education systems face the dilemma of how to ensure an adequate scholastic level in increasingly more heterogeneous student populations while maintaining schools and classes whose educational climate and social structure suit the ideals of a democratic society. Among the means applied to cope with this problem is the manipulation of student body compositions, i.e., separating or mixing "weak" and "strong" students. In practice, this means either maintaining uni-track schools or providing for comprehensive ones; keeping schools segregated along ethnic or social class lines or introducing educational integration; and forming inter- or intra-class ability groups, streams, homogeneous homeroom classes, and curricular tracks or providing for heterogeneous frameworks. In the controversy which surrounds these manipulations, the argument of 'psychological price', whereby the weak student presumably pays for the improved socio-learning environment of integrated schools and classrooms, plays a central role.

After outlining the array of arguments raised in favor of and against separation and mixing, this paper focusses on the argument of the 'psychological price' assessing its validity through an analysis of existing research supplemented by a more in-depth investigation of our own.

Separation or Mixing: Contrasting Arguments

A political and educational controversy over compositional manipulations has been raging for decades. Concomitant with the democratization of education its fervor is continuously increasing. The debate, anchored in different social and

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educational philosophies, relates to the needs of society, the educational system, and the individual student (Evetts, 1973; Morshead, 1975; Bailey and Bridges, 1983). It deals with the validity and reliability of educational selection; with ways of teaching and learning; with scholastic, emotional and social outcomes for the student within the school, his peer group and community; and with effects on the student's social status and life chances as an adult (Yates, 1966; Franseth and Kourg, 1966; Husen and Boalt, 1967; NEA, 1968; Ford, 1969; Heathers, 1969; Simon, 1970; Sorenson, 1970; Findley and Bryan, 1971; Mosteller and Moynihan, 1972; Esposito, 1973; St. John, 1975; Bowles and Gintis, 1976; Frankenstein, 1976, McDermott, 1976; Kelly, 1978; Rist, 1978; Klein and Eshel, 1980; Rosenbaum, 1980; Stephan and Feagin, 1980; Reid et al.,1981; Amir, Sharan, and Ben-Ari, 1984).

Proponents of homogeneity raise three main arguments. First, they point to the academic benefit gained by matching content and level of learning materials and pace of instruction with student ability. Second, they claim that separation frees weak students from pressures of unfair competition, attenuates their feelings of inferiority, allows them a sense of achievement and improves their self-image. The didactic fit and the psychological release are said to arouse motivation and eventually increase achievement. Third, they argue that teacher work load is alleviated in classes with restricted ability ranges to the benefit of both student and teacher. In the final analysis, they claim, separation can improve fulfillment of personal potential - undoubtedly among the brighter students, but also among the weaker ones.

In return, partisans of heterogeneity attack educational separation as discriminatory and as disregarding the diversity of human intellect, its dynamic nature, and the role of non-cognitive factors in learning. They maintain that under separation quantitative academic achievements are emphasized at the expence of more diffuse moral, social and expressive educational goals, and that

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students are prevented from experiencing heterogeneous social frameworks as a true reflection of adult society.Advocates of integration claim that weak students benefit from learning with strong students. The absence of the latter is said to impoverish the curriculum, reduce study-relevant interaction, lower interest, diminish teacher demands and student ambition, and impair learning efforts of average and weak students, thereby reducing achievement. They point out that separation attaches a stigma to students in the "low" schools and trajectories, one which lowers teacher expectations and affects peer relationships and self-image; hence, both educational achievement and social status are likely to be reduced. Not only is the initial educational gap between homogeneous levels maintained,but it widens with time. At the individual level the chances of extracting scholastic potential — and certainly of increasing it — are reduced and life opportunities are affected; at the societal level wastage of talent results. Finally, those who oppose separation stress its contribution to social segregation, not only along intellectual lines, but also along social class and ethnic ones. They suggest that the provision of different educational contexts and contents to different groups of students creates differential socialization which in fact helps to reproduce existing cultural and social inequalities.

In this wide range of arguments two sets of factors can be discerned. The first refers more to the student's cognitive behavior as expressed mainly in his scholastic achievement. It contains factors of <u>normative</u> meaning, like curriculum, methods, academic norms, quality of scholastic interaction, the class 'pool' of information and the models of cognitive behavior available therein. In relation to this set, although homogeneous "matching" is considered advantageous for both strong and weak, "impoverishment" of the learning environment for the weak and its "enrichment" for the strong is also pointed out. The second set is associated more with the student's affective responses,

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like anxiety, sense of achievement, sense of participation, identification, feelings of deprivation, alienation, self-image, motivation and control. It includes factors of comparative meaning like the scholastic and social status scales relevant for the student and the labels which symbolize the relative position of students within classes, of classes within schools, and of schools within the educational system. With regard to the student's affective responses there are references to "liberation" as opposed to "labelling" and to positive and negative feelings, especially regarding weak students allocated to low-level frameworks.

These two sets of claims can be seen as two sides of the same coin. With regard to the cognitive domain, the educational benefit derived from matching curriculum, instruction and norms to differential abilities may be associated with a price of impoverishing the socio-learning environment for the weaker students (as opposed to enrichment for stronger ones) in those very same elements which have been matched, especially in the content quality, and perhaps also in the motivational quality of the classroom scholastic interaction. Thus, an assesment is required of the relative effect of didactic fit as against the impoverishment of intellectual and social composition (and of curriculum). Regarding the affective domain, the benefit of separation reveals itself in an easing of pressures upon the weaker students, but this relief is experienced within the narrow social framework of the classroom and may exact a price of stigmatic, social and institutional labelling, significant in wider social contexts within and without the school. Thus, it is necessary to determine the relative strength of the emotional relief in the narrow circle as opposed to the stigmatic and frustrating effect in the wider circles. It seems plausible that the balance of profit and loss in the cognitive domain will affect that in the affective domain and vice versa: a positive emotional state may improve achievement, while achievement will improve an emotional state. Here a more

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comprehensive question arises regarding the relative effect that structural, cognition-related, and affective factors have upon scholastic behavior and achievement following separation or mixing.

The interest of educationalists in the student's affective-motivational domain is fourfold. Affective factors are conceived: (1) as related to the student's psychological well-being as an end in itself; (2) as personal resources which also contribute to his scholastic achievement; (3) as having an effect upon his attitudes toward the school and its socialization process; and (4) like feelings of deprivation, for instance, as affecting his eventual integration in society. In all these senses the affective domain is implied in the 'psychological price' argument, namely, the price which weaker students are assumed to pay in the transition from separated, homogeneous learning frameworks to integrated, heterogeneous ones that are socially and intellectually richer, but scholastically more competitive (Bronfenbrenner, 1967; St. John, 1975; Chen, Lewy, and Kfir, 197[illegible]; Klein and Eshel, 1980). Thus, it is the affective domain which will be analyzed with respect to the validity of the psychological price argument. A brief outline of a conceptual framework precedes analysis.

A Conceptual Framework

The wide spectrum of variables representing the affective domain in studies of separation and mixing may be roughly sorted into two clusters. The first includes such variables as academic self-image, locus of control, academic motivation, attitudes toward school and learning, educational and occupational expectations and, more rarely, anxiety and feelings of deprivation. This cluster may be seen as related directly to the learning situation in the school and as reflecting the student's motivational system and his learning status (see Walberg and Ugoroglu, 1979). The second cluster encompassing such variables as sociometric positions, group identification, inter-group prejudices and

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inter-group relations, may allude to the learning situation, but is largely connected to the school's social system and influenced by wider societal situations (see Amir, 1977; Schofield, 1978). Since our interests focus on the learning-relevant aspects of the issue, the following analysis concentrates on the first cluster.

Notwithstanding the great diversity of variables, their definitions, measurement and research designs, we shall treat findings in a unified analytical framework, relating to three categories of studies of compositional manipulations: studies of ability grouping and streaming, usually in the elementary school; studies of high school curriculum tracking; and studies of ethnic and racial integration (or desegragation) in elementary and junior high schools. A rationale for the analytical combination of such diverse educational practices has been elaborated elsewhere (Dar and Resh, 1981, Ch.3). It will suffice here to indicate that the common denominator of these three categories of student body manipulations is that they separate (homogenize) or mix (heterogenize) "weak" and "strong" students in terms of their levels of learning-relevant personal resources. These resources assume predominant importance in determining student behavior and status in educational systems. From the standpoint of this analysis, it does not matter if the weakness or strength of these resources are directly defined in intellectual terms or if they are implied in social and ethnic definitions due to the correlation between social background and command of learning resources. Parallelly, it is the intellectual dimension of student-body composition which is the major determinant of the quality of the student's socio-learning environment (Dar and Resh, 1981, Ch. 4). This is particularly true when relating to the cluster of affective-motivational variables which are more directly associated with learning.

It should be stressed here that despite our usage of the

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homogeneity-heterogeneity distinction , our main interest is not in the within-group interpersonal variance of learning resources, but in the group level of these resources. By viewing separation and mixing as a dynamic process -- i.e., in terms of transition from one composition to another by those poor (weak) and rich (strong) in personal resources -- the concepts of homogeneity and heterogeneity blends with that of level of student body composition. We conceive the separated, homogeneous educational framework as an enriched composition for the strong and an impoverished one for the weak, while the mixed, heterogeneous framework constitutes an enriched composition for the weak and an impoverished one for the strong. The independent variable in this analysis is thus conceptualized as the quality of the socio-learning environment (SLE) as it is affected by separating students with varied levels of learning resources into high and low homogeneous frameworks or by mixing them in heterogeneous ones.

Two alternative hypotheses can be raised regarding the effect of classroom composition on motivation-related variables. While both draw on reference group theory, they refer to different capacities of the reference group. The first refers to its normative function, i.e., its capacity to serve as a norm resource for the individual; the second applies to the group's comparative function, namely, its capacity to provide a comparison scale for self-evaluations (Kelley, 1952). The first hypothesis rests on the notion of environmental pressure (Werts and Wattley, 1967; Drew and Astin, 1972), whereby motivation is normatively influenced and is likely to increase in a socially and intellectually richer environment and decrease in a poorer one. One may thus expect a motivational advantage for the weak in heterogeneous classes alongside some advantage for the strong in (high) homogeneous classes. The alternative hypothesis draws on the notion of relative deprivation (Merton and Kitt, 1950; Davis, 1959), whereby motivation is comparatively influenced. Accordingly, it is expected to drop in a

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richer environment and rise in a poorer one. Along these lines, motivation of the weak would decrease in heterogeneous classes and increase in (low) homogeneous ones.

Analysis Of Existing Research

In existing studies of compositional manipulations, the affective domain has received much less attention than the cognitive one. Thus, of the thirty-three studies surveyed by Extrom (1961), only one touched on the affective domain. In the NEA (1968) survey of fifty studies carried out during the 1960s, only fifteen deal with affective variables. Findley and Bryan (1971) point to the scant contributions on this topic in the relevant entries of the successive editions of the Encyclopedia of Educational Research. St. John (1975) points to the neglect of this domain in research of school desegregation in the U.S. Not only has the affective domain seldom been treated, but when it is considered, it is disconnected from academic achievement. In this review we concentrate on schol attitudes, academic self-image, aspirations and control in studies of ability grouping, streaming, curriculum tracking and racial and ethnic integration.

Studies of ability grouping and streaming generally point to a less favorable attitude toward school among weaker students in heterogeneous compositions, i.e., in an enriched SLE. This is the case in the American studies of Drews (1963), Wilcox (1964) and Borg (1965), and in the Swedish study of Sjostrand (1967). No difference was found by Goldberg, Passow and Justman (1966) in a city sample of New York. An opposite tendency was found in Barker-Lunn's (1970) English study: weak students had more positive attitudes in non-streamed, more heterogeneous settings. Intensity and scope of separation may explain the difference. While the American studies treat relatively flexible partial grouping, the English study deals with rigid comprehensive streaming. In

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the latter case the advantage to be gained from the release of tension and frustration in the non-competitive milieu of the lower stream may be counterbalanced by the psychological price of stigmatic labelling associated with the low status of that stream (Hargreaves, 1967).

In contrast, a consistent pattern is evident with respect to academic self-image, which for weak students tends to improve in the impoverished SLE of (low) homogeneous classes and to deteriorate in heterogeneous ones; an opposite tendency is indicated for strong students. In both cases self-image is inversely related to SLE quality, rigidity of separation notwithstanding. The Israeli study of ability grouping (Gutman et al., 1972), where no differences by ability level were found, is an exception.

Under conditions of more intensive homogenization in high school curriculum tracking an unequivocal pattern appears in the U.S. (Schafer and Olexa, 1971; Kelly, 1975; Alexander and McDill, 1976; Rosenbaum, 1976; Alexander, Cook, and McDill, 1978; Alexander and Cook, 1982; Oakes, 1982). A similar pattern is found in Israeli studies (Yuchtman and Samuel, 1975; Nachmias, 1980). The enriched SLE of the college preparatory track has been shown to be positively related to attitudes toward school and learning, academic self-image and educational aspirations. Separation thus seems to raise the self-image and aspirations of students in the high tracks and lower them in the low tracks. Analogously, one may assume an opposite effect in a non-tracked situation. It should be noted, however, that track influence was usually examined without a comparison with non-tracked students.

Findings in studies on racial and ethnic integration with respect to self-image of black and white students in the U.S and of students of Jewish Western and Oriental origin in Israel are in general analogous to those on ability grouping. Most of the surveyed American studies show that the self-image, especially academic self-image, of the weaker group tends to drop in

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an integrated setting while that of the stronger group tends to rise (Coleman et al., 1966; Bachman, 1970; St. John, 1971; Rosenberg and Simons, 1972; St. John, 1975; Hunt and Hunt, 1977; Drury, 1980; Brookover et al., 1981). This generalization, however, does not tally with Weinberg's (1977) conclusion that general self-concept of blacks is not declining in desegregated schools. Simons et al.(1978) found a drop in self-image only for blacks from broken homes; Gerard and Miller (1975) have found no change in self-evaluation; and Cheehan (1980) found a negative effect on general self-image of blacks but not on academic self-image. A similar picture is depicted from the surveyed Israeli studies. With the exception of Klein and Eshel (1980), a lower self image was consistently found among students of Oriental origin in integarted settings (Lewy and Chen, 1974; Bashi, 1977; Chen, Lewy, and Kfir, 1977). These findings imply that the self-image derived through direct questions presented to the student in a classroom is likely to be context bound; students evaluate themselves and their performance relative to their classmates. Thus, the richer the SLE, the lower the self-image. It is noteworthy that in most of the studies surveyed enrichment of SLE, while negatively linked to academic self-image, seems to be positively related to the student's sense of fate control. Findings of expectations, particularly educational ones, are not unequivocal. In St. John's (1975) survey a slight negative effect of desegregation on expectations of blacks is apparent, particularly at the primary level. This tendency tallies with a number of American studies of the "frog pond" effect at the high school and college levels (Davis, 1966; Werts and Watley, 1969; Meyer, 1970; Drew and Astin, 1972; Nelson, 1972; Alexander and Eckland, 1975; Alwin and Otto, 1977), where the intellectual composition of the school was found to have a weak direct positive effect upon student expectations counterbalanced by an indirect negative effect operating through teacher grades. On the other hand, a study of integration in the Israeli middle school (Chen, Lewy, and Kfir, 1977) found an

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association between an increase in educational and occupational aspirations and a higher percentage of students of Western origin (the stronger group in the integrational encounter).

Examination of all the above findings leads us to two conclusions. Firstly, the effect of student composition on affective-motivational variables may be differential by type of compositional manipulation. This deduction derives from the findings regarding self-image in studies of ability grouping and integration, on the one hand, and those of curriculum tracking, on the other. The latter show that enriched composition improves self-image, while the former point to the opposite conclusion. Age of students and rigidity of separation may explain the difference. Ability grouping in elementary and junior high schools involves a relatively low intensity of homogenization. Moreover, with respect to both grouping and educational integration at these school levels, the rather young age of students tends to confine their social horizons to the classroom. Hence, within-classroom comparisons tend to outweigh out-of-class references and a depressing effect of relative deprivation on self-image is probable in the richer SLE. In contrast, wider social contexts of school and community acquire greater saliency in the high school and hence the weight of out-of-class comparisons increases. This effect is likely to be augmented by the more rigid separation in curriculum tracks which convey a clear message with regard to the future payoff of learning. Thus, track affiliation may be no less, and even more, important than the relative within classroom position in determining self-evaluations. In other words, the negative effect of the richer SLE on self-image activated by internal comparisons, may be counterbalanced by the positive effect of external comparisons. A similar pattern of effects is assumed to be operating on educational and occupational expectations, which rise in the richer SLE of the "higher" track.

Secondly, classroom composition may differentially effect various affective

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realms. This conclusion is deduced from the divergent pattern of effects on academic self-image, on the one hand , and locus of control (and sometimes aspirations) on the other hand, especially in studies of ability grouping and integration. This pattern points to the possibility that a change in student composition activates different classroom processes which differentially affect affective variables. Moreover, the pattern of effects in the affective domain does not correspond to that in the cognitive one. This is apparent when one compares effects of separation upon self-image with those upon academic achievement in those regretfully few studies which attempt to explore both factors simultaneously. In homogeneous classes the self-image of strong students is lower and achievement is somewhat higher, while the self-image of weak students is higher and achievement lower, in comparison to their counterparts in heterogeneous classes (Dar and Resh, 1981, Chs. 2 and 5). One can infer contrasting effects of SLE quality on achievement and on academic self-image, whereby enrichment raises the former and lowers the latter while impoverishment has the opposite effect. The lower self-image in low curriculum tracks in the high school is an exception, the possible reasons for which were discussed above.

Empirical Inquiry: Classroom Composition, Affective-Motivational Variables and Academic Achievement

Here we further scrutinize the conclusions that have been reached so far in a specific study of our own. Four related questions are addressed: (1) whether a psychological price is indeed indicated in the student's affective domain when classroom composition is improved; (2) whether this price varies with respect to different dimensions of this domain; (3) whether it differs for strong and weak students; and (4) whether it is related to academic achievement.

Research Design

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The analysis is based on two different Israeli studies (see Dar and Resh, 1981, Ch. 4). The first was carried out in 1971-2 with a sample of 700 tenth, eleventh, and twelfth graders learning in six kibbutz high schools. While fairly heterogeneous intellectually, the sample was highly homogeneous in student ethnic and socioeconomic background. In four of these schools (30 classes) homogeneous homeroom classes at two ability levels were formed, in the other two (18 classes) homerooms were heterogeneous. The second study was carried out in an Israel-wide sample as a re-analysis of data collected between 1972 and 1974 for the Middle School research (Chen, Lewy, and Adler, 1978). The sample included 4,000 Jewish eighth and ninth graders in 38 schools and 135 classes ranging from high homogeneous (high mean achievement, high SES, high percentage of students of Western origin), to heterogeneous to low homogeneous classes (low achievement and SES, high percentage of students of Oriental origin). Characteristic of the Israeli school system, the homeroom class constituted the main setting of the student's learning and social activities in both samples.

In the kibbutz sample a quasi-experimental comparison was made between heterogeneous classes and high and low homogeneous ones. In the middle school sample the classroom composition was represented by the class mean achievement. Affective and academic achievement data in both samples were collected cross-sectionally, and earlier aptitude/achievement data were available as a control. While different affective variables analyzed — teacher evaluation of student learning motivation in the kibbutz sample and locus of control, aspirations (educational and occupational), and academic self-image separately analyzed in the middle school sample — there was a basic similarity between the two studies.The latent treatment variable in both was SLE quality as determined by classroom intellectual composition. In both, compositional effect was analyzed in terms of a hypothetical transition from a richer to a poorer SLE (and vice versa) of students with varied amounts of learning-relevant resources.

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While in the middle school sample SLE quality was straightforwadly expressed by the classroom intellectual level, in the kibbutz study it was implied in that, in comparison to a heterogeneous class, a homogeneous one constitutes an impoverished SLE for the weak student and an enriched one for the strong student. To indicate this difference the foregoing analysis differentiates between classroom structure in the kibbutz sample and classroom composition in the middle school sample. A similar regression model was applied in both studies. The interaction between personal ability and SLE was detected through separate analyses within halves of the pre-treatment aptitude/achievement distribution. (For definitions and metrics of variables, see Appendix.)

The Affective Dimension as an Outcome

The affective variables are analyzed first as dependent on classroom composition and then as intervening between composition and academic achievement. In the kibbutz sample only 11 percent of the variance in motivation is explained and classroom structure has no effect in aggregate analysis (Table 1). However, interaction is indicated between classroom structure and student's aptitude. It appears that motivation (as measured by teacher evaluations) is inversely related to SLE quality; weak students in (low) homogeneous classes reveal higher motivation than their counterparts in heterogeneous classes while strong students reveal lower motivation in (high) homogeneous classes than in heterogeneous ones.

Table 1 about here

The middle school sample shows that classroom composition has a weak but differential effect regarding the three variables (Table 2). This effect is most significant on academic self-image, less on locus of control and minimal on aspirations. Directions of effects are also different: the effect on academic self-image (similar to that on learning motivation in the kibbutz sample) is

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negative while that on locus of control is positive. The weaker effect on the latter variable may be attributed to its being a more stable personal trait, less affected by the class context (Mischel, Zeiss, and Zeiss, 1974). There is no differential effects on strong and weak students.

Table 2 about here

Affective Variables as Mediating Achievement

At this point the intervening role of affctive variables is analyzed. In the regression model these variables now become independent (one at a time) while academic achievement becomes the dependent variable. Examined are (1) the contribution of each of the affective variables to the prediction of achievement, and (2) the contribution of classroom intellectual composition to achievement when the affective dimension is controlled.

The kibbutz study indicates that learning motivation has a significant positive effect on academic achievement, notwithstanding the control of the strong variable of previous ability/achievement (Table 3). However, the unique contribution of motivation in explaining achievement variance in the aggregate is only about one percent. A similar picture arises from the middle school sample: the three affective variables examined have a significant positive effect on achievement but their unique contribution in explaining achievement variance is minimal (Table 4). In the aggregate analysis locus of control and aspirations contribute less than one percent and academic self-image contributes two percent.

Tables 3 and 4 about here

In both samples an interesting interaction with personal ability is indicated. The effect of the affective variables on achievemnt is greater in the upper half of the personal ability distribution, namely among the stronger students. This is conspicuous with regard to motivation in the kibbutz sample.

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There are two possible explanations. First, low ability may imply a threshold beyond which the contribution of motivation to achievement is minimal. Second, teachers may evaluate motivation of high-ability students more effectively and the latter may be more accurate in assessing their learning ability (academic self-image).

The most interesting finding arises from comparison of the treatment effect with and without motivation in the regression model. Thus, the overall advantage to heterogeneity, though small, indicated in the kibbutz sample when motivation is excepted from analysis, endures when motivation is accounted for. Likewise, the interaction between treatment (homogeneity or heterogenity) and personal ability is underlined: the contrast in the treatment effect between strong and weak students becomes greater when motivation is included in the analysis. The minimal, unexplained, advantage in achievement of strong students in heterogeneous classes (poorer SLE) which appeared when motivation was excepted becomes, as hypothesized, a minimal advantage to homogeneity when motivation is included; in contrast, the advantage to heterogeneity for the weak students (richer SLE) increases.

In the middle school sample as well the inclusion of affective variables does not alter the pattern of a positive and asymmetric effect that classroom composition has on objective academic achievement. Learning in a heterogeneous class — impoverished SLE for the strong and enriched for the weak — has a minimal negative effect on the former but a stronger and positive effect on the latter. It is noteworthy that this conclusion continues to hold when the analysis includes learning motivation and academic self-image, variables positively related with achievement but negatively associated with SLE quality.

Summary

The inquiry in both samples may be briefly summarized in three points:

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1. Classroom composition explains only a small portion of the variance in the examined affective-motivational variables, but its effect is differential. The effect is greater, and negative, regarding learning motivation as evaluated by teachers and regarding academic self-image; it is weaker, but positive, regarding locus of control, and minimal (positive) regarding educational and occupational aspirations.

2. The affective variables have a positive effect on objective academic achievement; however, their unique contribution in explaining achievement variance is very small. Both direct effect and unique contribution are differential by personal ability level, i.e., they are stronger among the strong.

3. The positive effect of SLE quality on academic achievement -- stronger on the achievement of the weak — endures the control of affective variables, even those negatively related to SLE quality.

Discussion And Conclusions

The claim to integrate students of different ability, social class and ethnic background is raised because segregation forms and perpetuates poor socio-learning environments for weak students and is thus conceived as impairing equality of educational opportunity for the weaker social groups. But integration, less on the school level and more so in the classroom, generates opposition among three powerful groups: the parents of the strong students, the educational establishment of the "high" learning trajectories and the potential teachers of the heterogeneous classes. The three groups raise arguments which express genuine educational and social considerations along with particular vested interests. The strong parents of the strong students are alarmed by the assumed drop in their children's academic achievement as well as their exposure to undesirable social influences. Though their adversity is tinged with

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inter-group alienation and prejudice, it also derives from a zero-sum game conception of integration, whereby the loss of the strong equals the profit of the weak. This conception is shared by the other two oppositional groups. The managerial and pedagogical establishment of the elite tracks is eager to maintain their high academic level but is no less concerned with institutional prestige as reflected by academic credentials. Teachers, well aware of the difficulties in handling heterogeneous classes, raise first of all the argument of "didactic fit", whereby adaptation of content, level and pace of learning to differential ability is beneficial for all students, strong and weak. However, their mental reservation regarding heterogeneous classrooms draws also on the argument of the psychological price supposedly paid by the weak student for the dubious academic benefits of integration. This argument is proposed from two perspectives: the first focuses on the student's emotional well-being as an end for itself, the other regards this well being as a factor in the student's learning effectivity. Both perspectives guided our analysis of the existing research and the supplementary inquiry that we have conducted.

Regarding the first perspective, similar conclusions were reached in both analyses. The student's affective-motivational domain, as operationalized here, is indeed affected by manipulations of separation and mixing, i.e., by changes in SLE quality. The effect is weak, but differential in size and direction for various variables. It is stronger and negative on academic self-image and teacher assessment of student motivation and weaker but positive on locus of control and educational and occupational aspirations.

The difference in intensity of effcet is noteworthy, as it indicates that affective variables are differentially sensitive to the context of the classroom. Teacher assessments of student motivation and student evaluations of their own learning status are apparently bound more to the specific class context, which serves as a principal frame of reference in eliciting these

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responses.

The differential direction of effects leads us to hypothesize that they are mediated by processes particular to the different affective realms. Thus, learning motivation and academic self-image are apparently mediated more by a comparative process, so that richer composition leads to a lower evaluation. Hence, a weak student in a heterogeneous class is evaluated as less motivated and has a lower self-image than his counterpart in a (low) homogeneous class, while a strong student will show higher self-image and motivation in a heterogeneous class than his peer in a (high) homogeneous one. The contextual bias may provide a parsimonious, and perhaps sufficient, explanation of the interactive effect of classroom composition and ability level upon these affective realms. Still, the possibility that a more complex psycho-social process operates here should not be ruled out. The comparative reference may activate a response of relative deprivation among weak students in heterogeneous classes during their competition with stronger classmates. The frustration arising from recurring lack of success is likely to have a negative effect on self-image and motivation. A similar response is likely to occur among some of the strong students in the competitive milieu of the (high) homogeneous classroom.

Locus of control (and perhaps aspirations too), so far as it is responsive to contextual influence, is positively effected by SLE quality. Two explanations, not necessarily mutually exclusive, may be raised regarding this effect. First, locus of control may be normatively influenced by within classroom references, whereby the student's sense of control is enhanced in the richer SLE by some process of modelling and learning. Second, it may be influnced comparatively through references made in wider social contexts of the school and community, whereby enhancement of fate control follows a feeling of relative gratfication stemming from affiliation with the richer SLE.

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In clarifying the role of affective variables in intervening between classroom composition and academic achievement we had to rely mainly on two Israeli samples. As expected, a positive effect of the affective variables on achievement was indicated, though their unique contribution in explaining achievement variance was very small. Both direct effect and unique contribution are differential by personal ability: they are greater among the strong, apparently the result of a threshold of ability beyond which the contribution of motivation to the achievement of weak students is very small.

The most conspicuous finding, however, is that controlling for affective variables does not alter the pattern of positive effect of classroom composition on academic achievement, the effect being greater on the weak students. This pattern is sustained even when controlling for self-image and motivation, variables positively related to achievement but negatively related to SLE quality.

The advantage in achievement afforded low-level students in a richer environment thus appears together with some loss in several affective dimensions and some gain in others. Obviously, the argument of an overall "psychological price" is not sustained by the analysis. The weaker group in the integrational encounter may pay a price mainly in academic self-image but may gain in a sense of fate control. Moreover, the price paid in terms of some affective, motivation-related variables is not accompanied by a drop in academic achievement; in fact it increases. Even if pressures of the richer environment, probably activated by comparative processes, produce lower evaluations of motivation and academic self-image, the same environment operates through normative processes and probably through external comparisons to raise scholastic achievement, and, to a lesser extent, to enhance sense of control and even to increase aspirations. This inference is indirectly supported in studies which point out that academic aptitude and achievement are principally affected

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by cognitive processes and only secondly by affective predispositions (Jensen, 1973; Marjoribanks, 1976; Seginer, 1980). It is also worth noting here that efforts to improve academic achievement via change in self-image yielded very poor results (Scheirer and Kraut, 1979).

This notwithstanding, the possible price paid in the student's affective domain should still concern educators. Much more research is needed of pedagogical intervention aimed at enhancing self-image and motivation of weak students in integrated educational settings, without abandoning integration itself and its academic benefits. The hypotheses raised here regarding the mediating role of normative and comparative processes activated by student-body manipulations also deserve more specific research.

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Appendix: Variables in the Israeli Samples

1. Learning motivation (kibbutz sample): a mean score on a six-item index of four teachers' evaluations of student learning motivation, adopted from Adar (1969). The index scale ranges from 1 (very low) to 5 (very high). Sample mean = 3.20; s.d. = .78. Reliability (alpha) = .94. Correlation with "Seker" score (see 6 below) = .35, with achievement = .36.

2. Locus of control (middle school sample): a mean score on a six-item index adopted from Coleman et al.(1966), Rotter (1966), and Gurin et al. (1969), ranging from 6 (external control) to 12 (internal control). Sample mean = 9.44; s.d. = 1.45. Reliability (alpha) = .50. Correlation with achievement and classroom composition is .40 and .33 respectively.

3. Aspirations (middle school sample): a mean score on a four-item index exploring educational and occupational aspirations. The index scale ranges from 4 (low) to 17 (high). Sample mean = 13.61; s.d. = 2.60. Reliability (alpha) = .57. Correlation with achievement and classroom composition is .59 and .44 respectively.

4. Academic self-image (middle school sample): one-item self-evaluation of student as a learner, ranging from 1 (very weak) to 6 (excellent). Sample mean = 3.73; s.d. = .83. Correlation with achievement and classroom composition is .15 and -.03 respectively.

5. Academic achievement: mean score (percentage of correct answers) on a battery of achievement tests (see Dar and Resh, 1981, Ch. 4). The kibbutz study used four tests; sample mean = 56.03; s.d. = 12.89. The middle school study employed six tests; mean = 58.40; s.d. = 19.54.

6. Pre-treatment aptitude/achievement: The kibbutz study employed the

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"Seker" score, which is derived from a government test administered in the eighth grade and used to allocate students to secondary education frameworks (Ortar, 1967). Sample mean = 78.46; s.d. = 9.63. The middle school study employed a mean score on a battery of achievement tests administered in the seventh grade, a year before the main measurement. Sample mean = 58.14; s.d. = 16.74.

7. Gender: 1 = male; 2 = female.

8. Grade level (kibbutz sample only): 1 = tenth grade; 2 = eleventh grade; 3 = twelfth grade.

9. Classroom composition: In the kibbutz sample, heterogeneous class = 1; homogeneous class = 2. In the middle school sample, classroom mean of the academic achievement tests administered in the eighth grade.

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Table 1: Regression of Learning Motivation on Grade Level, Gender, Pre-Treatment Abilty/Achievement ("Seker") and Class Structure (Het./Hom). Kibbutz Sample, Metric (b) and Standardized Coefficients [a]

Personal Ability Category	X_1 Grade Level		X_2 Gender		X_3 "Seker"		X_5 Class Structure		R^2
	b	B	b	B	b	B	b	B	
All Students	.05	.05	.12*	.08	.03*	.34	-.01	-.00	.11*
Upper Half	.15x	.17	.15	.10	.04*	.22	-.24x	-.16	.09*
Lower Half	-.04	-.04	.13	.09	.03*	.27	.20+	.13	.09*

+p< .05 xp <.01 *p<.001

[a] Negative coefficients of X_2 and X_5 indicate an advantage to males and to heterogeneity, respectively.

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Table 2: Regression of Locus of Control, Aspirations, and Academic Self-image on Gender, Pre-Treatment Ability/Achievement (7th Grade Achievement) and Class Composition. Middle School Sample, Eighth Grade, Metric (b) and Standardized (B) Coefficients

Personal Ability Category	X_2 Gender		X_3 7th Grade Achievement		X_5 Class Composition		R^2
	b	B	b	B	b	B	
Locus of Control							
all students	-.22*	-.08	.03*	.35	.01*	.12	.20 *
upper half	-.13	-.05	.03*	.22	.02	.01	.05 *
lower half	-.26x	-.09	.03*	.21	.02*	.18	.12 *
Aspirations							
all students	.56*	.11	.08*	.53	.01	.04	.31 *
upper half	.26+	.07	.07*	.30	.01	.04	.10 x
lower half	1.07*	.20	.08*	.32	.00	.02	.15 *
Academic Self-Image							
all students	.08x	.05	.09*	.60	-.03*	-.45	.20 *
upper half	.17*	.10	.05*	.47	-.03*	-.34	.22 *
lower half	.02	.01	.02*	.24	-.02*	-.40	.13 *

+p <.05 x p <.01 * p <.001

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Table 3: Regression of Achievement on Grade Level, Gender, Pre-Treatment, Ability/Achievement ("Seker") and Class Structure (Het/Hom) with and without Affective Dimension Considered. [a] Kibbutz Sample, Metric (b) and Standardized (B) Coefficients

Personal Ability Category	X_1 Grade Level		X_2 Gender		X_3 "Seker"		X_4 Learning Motivation		X_5 Classroom Structure		R^2
	b	B	b	B	b	B	b	B	b	B	
All students	4.79*	.31	-3.75*	-.14	.78*	.60	2.32*	.14	-1.73+	-.07	.54*
	4.85*	.31	-3.45*	-.13	.85*	.65			-1.75+	-.07	.53*
Upper half	4.22*	.35	-3.78*	-.18	.67*	.29	3.45*	.25	.08	.01	.33*
	4.69*	.39	-3.24x	-.16	.80*	.35			- .76	-.04	.28*
Lower half	5.06*	.37	-4.19*	-.19	.62*	.36	1.69+	.18	-3.18x	-.14	.36*
	4.94*	.36	-3.95*	-.18	.68*	.39			-2.85x	-.13	.35*

+p < .05 x p <.01 *p < .001

[a] First row, full model; second row, without motivation in the model.

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Table 4: Regression of Achievement on Gender, Pre-Treatment Ability/Achievement and Class Composition with and without Affective Dimension Considered. Middle School Sample, 8th Grade, Metric (b) and Standardized (B) Coefficients. [a]

Personal Ability Category	X_2 Gender		X_3 7th Grade Achievement		X_4 Affective Variable		X_5 Classroom Composition		R^2
	b	B	b	B	b	B	b	B	
Locus of Control									
all students	-.45	-.01	.70*	.60	1.00*	.07	.42*	.31	.76 *
upper half	.59	.02	.87*	.54	1.09*	.10	.37*	.28	.53 *
lower half	-.54	-.02	.49*	.35	1.00*	.10	.46*	.43	.51 *
Aspirations									
all students	-1.07*	-.03	.67*	.57	.72*	.10	.43*	.31	.76 *
upper half	.18	.01	.84*	.52	1.04*	.15	.36*	.28	.54 *
lower half	-1.45*	-.05	.47*	.34	.61*	.12	.48*	.45	.51 *
Academic Self-Image									
all students	-.95*	-.02	.62*	.53	3.60*	.15	.52*	.39	.78 *
upper half	-.11	-.00	.75*	.47	3.41*	.21	.46*	.36	.55 *
lower half	-.85	-.03	.46*	.33	3.15*	.18	.56*	.52	.53 *
all students	-.67	-.02	.73*	.62			.43*	.32	.78 *
upper half	.45	.02	.91*	.57			.37*	.28	.52 *
lower half	-.81	-.03	.52*	.37			.48*	.45	.50 *

*$p < .05$ **$p < .01$ ***$p < .001$

[a] Bottom section of table without affective dimension in analysis

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